

WHAT IS CLAIMED IS:

1. An electrokinetic delivery system for personal use in self-administration of a medicament to a treatment site on an individual, comprising:

a device for releasable securement to an individual's finger and shaped in part to conform to at least a portion of the individual's finger;

at least one of an electrically conductive medicament or a medicament with an electrically conductive carrier therefor;

a retainer for releasably securing the device to the individual's finger;

a self-contained power source carried by said device;

a first electrode carried by said device adjacent a distal end portion thereof and adjacent the tip of the individual's finger upon retention of the device on the individual's finger, said first electrode being in electrical contact with said power source;

a second electrode carried by said device for electrical contact with a portion of the individual's finger, said second electrode being in electrical contact with said power source whereby, upon application of said first electrode to a treatment site with said at least one medicament interposed between the first electrode and the treatment site and completion of an electrical circuit through the first electrode, the at least one medicament, the treatment site, the individual's body, said second electrode and said power source, said device causes an electrical current to flow for electrokinetically driving the at least one medicament into the treatment site.

2. The system according to Claim 1 wherein delivery of the at least one medicament to the treatment site at least aids in treatment or prevention

of diseases or other abnormal or cosmetic conditions of skin or mucocutaneous membrane.

3. The system according to Claim 1 wherein delivery of the at least one medicament to the treatment site at least aids in treatment or prevention of infection.

4. The system according to Claim 1 wherein said at least one medicament to the treatment site is at least intended to treat or prevent bacterial infection of skin.

5. The system according to Claim 1 wherein said at least one medicament is at least intended to treat or prevent viral infection of skin.

6. The system according to Claim 1 wherein said at least one medicament is at least intended to treat or prevent microbial infection of skin.

7. The system according to Claim 1 wherein said at least one medicament is at least intended to stimulate hair growth.

8. The system according to Claim 1 wherein said at least one medicament is at least intended to treat a wound.

9. The system according to Claim 1 wherein said at least one medicament is at least intended to treat acne.

10. The system according to Claim 1 wherein said at least one medicament is at least intended to treat psoriasis.

11. The system according to Claim 1 wherein said at least one medicament is at least intended to treat eczema or contact or atopic dermatitis.

12. The system according to Claim 1 wherein said at least one medicament is at least intended to treat pruritis, dry skin, or keratosis.

13. The system according to Claim 1 wherein said at least one medicament is at least intended to treat actinic keratoses.

14. The system according to Claim 1 wherein said at least one medicament is at least intended to treat spider veins.

15. The system according to Claim 1 wherein delivery of the at least one medicament is at least intended to treat skin cancer.

16. The system according to Claim 1 wherein delivery of the at least one medicament to the treatment site at least relieves pain.

17. The system according to Claim 1 wherein said at least one medicament is at least intended to treat a herpetic symptom.

18. The system according to Claim 1 wherein said at least one medicament is at least intended to treat post-herpetic neuralgia.

19. The system according to Claim 1 wherein said at least one medicament is an antiviral.

20. The system according to Claim 1 wherein said at least one medicament is an anesthetic.

21. The system according to Claim 1 wherein said at least one medicament is at least intended to treat an inflammatory condition.

22. The system according to Claim 1 wherein said at least one medicament is dexamethasone.

23. The system according to Claim 1 wherein said at least one medicament comprises at least one anesthetic selected from the group consisting of lidocaine, xylocaine, prilocaine, prilocaine, fetanyl, remifentanyl, sufentanyl, alfentanyl, novocaine, procaine, morphine HCl and EMLA.

24. The system according to Claim 1 wherein said at least one medicament comprises an anti-proliferative agent or an anti-angiogenic agent.

25. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical selected from the group consisting of 5-fluorouracil, cisplatin, Efudex, soviudine and thalidomide.

26. The system according to Claim 1 wherein said at least one medicament is at least intended to treat a varicella zoster symptom.

27. The system according to Claim 1 wherein said at least one medicament comprises acyclovir.

28. The system according to Claim 1 wherein said at least one medicament comprises a chemical selected from the group consisting of analogs and derivatives of acyclovir.

29. The system according to Claim 1 wherein said at least one medicament comprises at least penciclovir or famciclovir.

30. The system according to Claim 1 wherein said at least one medicament comprises a behenyl alcohol.

31. The system according to Claim 1 wherein said at least one medicament comprises n-docosanol.

32. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical selected from the group consisting of analogs and derivatives of n-docosanol.

33. The system according to Claim 1 wherein said at least one medicament comprises 5-iodo-2 deoxyuridine (IUDR).

34. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical selected from the group consisting of cytosine arabinoside (Ara-C), adenine arabinoside (Ara-A), adenine arabinoside monophosphate (Ara-AMP), arabinofuranosyl hypoxanthine (Ara-Hx), phosphonoacetic acid (PAA), thymine arabinoside (Ara-T), 5'-amino-2', 5'-dideoxy-5-iodouridine (AIU), 1-beta-D-arabinofuranosyl-E-5-(2-bromovinyl)uracil (BV-ara-U), 1-beta-D-arabinofuranosyl-E-5(2-chlorovinyl)uracil (CV-ara-U), halogenated deoxytidines BrCdR and ICdR, and bromovinyldeoxyuridine (BVDU).

35. The system according to Claim 1 wherein said at least one medicament comprises an antiviral and an anesthetic.

36. The system according to Claim 1 wherein said at least one medicament is at least intended to treat an infection by a human papilloma virus.

37. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical selected from the group consisting of Imiquimod, sodium salicylate, tretinoin, benzoyl peroxide, bleomycin, interferons, Podocon-25, Wart Off and Compound W.

38. The system according to Claim 1 wherein said at least one medicament comprises an antibiotic.

39. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical selected from the group consisting of finasteride, minoxidil, antidihydrotestosterones and antidihydroestrogens.

40. The system according to Claim 1 wherein said at least one medicament comprises at least a steroidal or non-steroidal anti-inflammatory drug (NSAID).

41. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of benzamycin, benzoyl peroxide, cleocin, T-Stat, Clearasil, Benzac, Accutane, tazarotene, adapalene, azelaic acid and erythromycin.

42. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of anesthetics, analgesics, and other desensitizing agents.

43. The system according to Claim 1 wherein said at least one medicament comprises at least one anesthetic selected from the group consisting of lidocaine, xylocaine, prontosin, prilocaine, fetanyl, remifentanyl, sufentanyl, alfentanyl, novocaine, procaine, morphine HCl and EMLA.

44. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of vasodilators, antihistamines, antimetabolites, immunosuppressives, and antineoplastic agents.

45. The system according to Claim 1 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of antiandrogens, beta blockers, beta-adrenergic

antagonists, catecholamines, modulators of collagen deposition, and sympathomimetics.

46. The system according to Claim 1 wherein said first electrode includes a multi-channel electrode, each electrode channel being electrically driven in a current isolated fashion through a corresponding plurality of individual current loops with each channel receiving substantially the same current level.

47. The system according to Claim 1 including a current driver, said first electrode including a plurality of current distributive channels and a plurality of current limiters coupled between said driver and said channels to provide substantially the same current level in each said channel.

48. The system according to Claim 1 including a vibratory element carried by said device and electrically coupled to said power source for inducing ultrasonic vibration into the treatment site.

49. The system according to Claim 1 wherein said device is disposable after one-time usage.

50. A method of treatment by electrokinetic self-administration of a medicament into a treatment site for an individual, comprising:

providing a device shaped in part to conform to at least a portion of an individual's finger and having a self-contained power source, first and second electrodes, and a substrate in electrical contact with said first electrode and having an exposed contact surface;

providing at least one of an electrokinetically transportable medicament or a medicament with an electrically conductive carrier therefor;

releasably retaining the device on the individual's finger, with the second electrode in electrical contact with the individual's finger;

providing said at least one medicament in contact with said substrate or the treatment site;

while the device remains retained on the individual's finger, placing the contact surface of said substrate into contact with the individual's treatment site and causing electrical current to flow through said first electrode, the electrically transportable medicament or the conductive carrier, the treatment site, the individual's body, said second electrode and said power source to electrokinetically drive the medicament into the treatment site.

51. The method according to Claim 50 wherein delivery of the medicament into the treatment site at least aids in treatment or prevention of diseases or other abnormal or cosmetic conditions of skin or mucocutaneous membrane.

52. The method according to Claim 50 wherein delivery of the medicament into the treatment site at least aids in treatment or prevention of infection.

53. The method according to Claim 50 wherein said at least one medicament is at least intended to treat or prevent bacterial infection of skin.

54. The method according to Claim 50 wherein said at least one medicament is at least intended to treat or prevent viral infection of skin.

55. The method according to Claim 50 wherein said at least one medicament is at least intended to treat or prevent microbial infection of skin.

56. The method according to Claim 50 wherein said at least one medicament is at least intended to stimulate hair growth.



57. The method according to Claim 50 wherein said at least one medicament is at least intended to treat a wound.

58. The method according to Claim 50 wherein said at least one medicament is at least intended to treat acne.

59. The method according to Claim 50 wherein said at least one medicament is at least intended to treat psoriasis.

60. The method according to Claim 50 wherein said at least one medicament is at least intended to treat eczema or contact or atopic dermatitis.

61. The method according to Claim 50 wherein said at least one medicament is at least intended to treat pruritis, dry skin, or keratosis.

62. The method according to Claim 50 wherein said at least one medicament is at least intended to treat actinic keratoses.

63. The method according to Claim 50 wherein said at least one medicament is at least intended to treat spider veins.

64. The method according to Claim 50 wherein delivery of the at least one medicament is at least intended to treat skin cancer.

65. The method according to Claim 50 wherein delivery of the medicament into the treatment site at least relieves pain.

66. The method according to Claim 50 wherein said at least one medicament is at least intended to treat a herpetic symptom.

67. The method according to Claim 50 wherein said at least one medicament is at least intended to treat post-herpetic neuralgia.

68. The method according to Claim 50 wherein said at least one medicament is an antiviral.

69. The method according to Claim 50 wherein said at least one medicament is an anesthetic.

70. The method according to Claim 50 wherein said at least one medicament is at least intended to treat an inflammatory condition.

71. The method according to Claim 50 wherein said at least one medicament is dexamethasone.

72. The method according to Claim 50 wherein said at least one medicament comprises at least one anesthetic selected from the group consisting of lidocaine, xylocaine, prontosol, prilocaine, fetanyl, remifentanyl, sufentanyl, alfentanyl, novocaine, procaine, morphine HCl and EMLA.

73. The method according to Claim 50 wherein said at least one medicament comprises an anti-proliferative agent or an anti-angiogenic agent.

74. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of 5-fluorouracil, cisplatin, Efudex, soviudine and thalidomide.

75. The method according to Claim 50 wherein said at least one medicament is at least intended to treat a varicella zoster symptom.

76. The method according to Claim 50 wherein said at least one medicament comprises acyclovir.

77. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of analogs and derivatives of acyclovir.

78. The method according to Claim 50 wherein said at least one medicament comprises at least penciclovir or famciclovir.

79. The method according to Claim 50 wherein said at least one medicament comprises a behenyl alcohol.

80. The method according to Claim 50 wherein said at least one medicament comprises n-docosanol.

81. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of analogs and derivatives of n-docosanol.

82. The method according to Claim 50 wherein said at least one medicament comprises 5-iodo-2 deoxyuridine (IUDR).

83. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of cytosine arabinoside (Ara-C), adenine arabinoside (Ara-A), adenine arabinoside monophosphate (Ara-AMP), arabinofuranosyl hypoxanthine (Ara-Hx), phosphonoacetic acid (PAA), thymine arabinoside (Ara-T), 5'-amino-2', 5'-dideoxy-5-iodouridine (AIU), 1-beta-D-arabinofuranosyl-E-5-(2-bromovinyl)uracil (BV-ara-U), 1-beta-D-arabinofuranosyl-E-5(2-chlorovinyl)uracil (CV-ara-U), halogenated deoxytidines BrCdR and ICdR, and bromovinyldeoxyuridine (BVDU).

84. The method according to Claim 50 wherein said at least one medicament comprises an antiviral and an anesthetic.

85. The method according to Claim 50 wherein said at least one medicament is at least intended to treat an infection by a human papilloma virus.

86. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of Imiquimod, sodium salicylate, tretinoin, benzoyl peroxide, bleomycin, interferons, Podocon-25, Wart Off and Compound W.

87. The method according to Claim 50 wherein said at least one medicament comprises an antibiotic.

88. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of finasteride, minoxidil, antidihydrotestosterones and antidihydroestrogens.

89. The method according to Claim 50 wherein said at least one medicament comprises at least a steroidal or non-steroidal anti-inflammatory drug (NSAID).

90. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical selected from the group consisting of benzamycin, benzoyl peroxide, cleocin, T-Stat, Clearasil, Benzac, Accutane, tazarotene, adapalene, azelaic acid and erythromycin.

91. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of anesthetics, analgesics, and other desensitizing agents.

92. The method according to Claim 50 wherein said at least one medicament comprises at least one anesthetic selected from the group consisting of lidocaine, xylocaine, prilocaine, prilocaine, fetanyl, remifentanil, sufentanil, alfentanil, novocaine, procaine, morphine HCl and EMLA.

93. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of vasodilators, antihistamines, antimetabolites, immunosuppressives, and antineoplastic agents.

94. The method according to Claim 50 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of antiandrogens, beta blockers, beta-adrenergic antagonists, catecholamines, modulators of collagen deposition, and sympathomimetics.

95. The method according to Claim 50 including causing the electrical current to flow through a multi-channel electrode electrically driven in electrical isolation from one another such that substantially the same current level is provided in each channel.

96. The method according to Claim 50 wherein the device includes a current driver, a plurality of current distributive channels and a plurality of current limiters electrically interconnected between the current driver and the distributive channels, and wherein the step of causing electrical current to flow includes causing electrical current to flow in the distributive channels via a corresponding current limiter such that substantially the same current level is provided in each channel.

97. The method according to Claim 50 including inducing ultrasonic vibration in the treatment site by actuating a vibratory element carried by the device and electrically coupled to the power source.

98. The method according to Claim 50 wherein the device is disposable and including the step of disposing the device after driving the medicament into the treatment site.

99. A delivery device for self-administration of a substance to a treatment site on an individual, comprising a self-contained disposable applicator including a pad for containing the substance, a power supply, a first electrode overlying said pad and electrically connected to said power supply and a second electrode having a tactile surface in electrical contact with said power supply and lying on a side of said applicator remote from said pad, said second electrode having an electrically conductive material overlying the tactile surface, whereby, upon the individual's hand or a portion thereof in contact with said tactile surface of said second electrode holding the applicator pad against the treatment site, an electrical circuit is completed between the first electrode through the treatment site and the second electrode via the tactile surface, the electrically conductive material and the individual's hand and body for electrokinetically driving the substance into the treatment site.

100. The device according to Claim 99 wherein delivery of the at least one medicament to the treatment site at least aids in treatment or prevention of diseases or other abnormal or cosmetic conditions of skin or mucocutaneous membrane.

101. The device according to Claim 99 wherein delivery of the at least one medicament to the treatment site at least aids in treatment or prevention of infection.

102. The device according to Claim 99 wherein said at least one medicament to the treatment site is at least intended to treat or prevent bacterial infection of skin.

103. The device according to Claim 99 wherein said at least one medicament is at least intended to treat or prevent viral infection of skin.

104. The device according to Claim 99 wherein said at least one medicament is at least intended to treat or prevent microbial infection of skin.

105. The device according to Claim 99 wherein said at least one medicament is at least intended to stimulate hair growth.

106. The device according to Claim 99 wherein said at least one medicament is at least intended to treat a wound.

107. The device according to Claim 99 wherein said at least one medicament is at least intended to treat acne.

108. The device according to Claim 99 wherein said at least one medicament is at least intended to treat psoriasis.

109. The device according to Claim 99 wherein said at least one medicament is at least intended to treat eczema or contact or atopic dermatitis.

110. The device according to Claim 99 wherein said at least one medicament is at least intended to treat pruritis, dry skin, or keratosis.

111. The device according to Claim 99 wherein said at least one medicament is at least intended to treat actinic keratoses.

112. The device according to Claim 99 wherein said at least one medicament is at least intended to treat spider veins.

113. The device according to Claim 99 wherein delivery of the at least one medicament is at least intended to treat skin cancer.

114. The device according to Claim 99 wherein delivery of the at least one medicament to the treatment site at least relieves pain.

115. The device according to Claim 99 wherein said at least one medicament is at least intended to treat a herpetic symptom.

116. The device according to Claim 99 wherein said at least one medicament is at least intended to treat post-herpetic neuralgia.

117. The device according to Claim 99 wherein said at least one medicament is an antiviral.

118. The device according to Claim 99 wherein said at least one medicament is an anesthetic.

119. The device according to Claim 99 wherein said at least one medicament is at least intended to treat an inflammatory condition.

120. The device according to Claim 99 wherein said at least one medicament is dexamethasone.

121. The device according to Claim 99 wherein said at least one medicament comprises at least one anesthetic selected from the group consisting of lidocaine, xylocaine, prilocaine, prilocaine, fetanyl, remifentanyl, sufentanyl, alfentanyl, novocaine, procaine, morphine HCl and EMLA.

122. The device according to Claim 99 wherein said at least one medicament comprises an anti-proliferative agent or an anti-angiogenic agent.

123. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical selected from the group consisting of 5-fluorouracil, cisplatin, Efudex, soviudine and thalidomide.

124. The device according to Claim 99 wherein said at least one medicament is at least intended to treat a varicella zoster symptom.



125. The device according to Claim 99 wherein said at least one medicament comprises acyclovir.

126. The device according to Claim 99 wherein said at least one medicament comprises a chemical selected from the group consisting of analogs and derivatives of acyclovir.

127. The device according to Claim 99 wherein said at least one medicament comprises at least penciclovir or famciclovir.

128. The device according to Claim 99 wherein said at least one medicament comprises a behenyl alcohol.

129. The device according to Claim 99 wherein said at least one medicament comprises n-docosanol.

130. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical selected from the group consisting of analogs and derivatives of n-docosanol.

131. The device according to Claim 99 wherein said at least one medicament comprises 5-iodo-2 deoxyuridine (IUDR).

132. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical selected from the group consisting of cytosine arabinoside (Ara-C), adenine arabinoside (Ara-A), adenine arabinoside monophosphate (Ara-AMP), arabinofuranosyl hypoxanthine (Ara-Hx), phosphonoacetic acid (PAA), thymine arabinoside (Ara-T), 5'-amino-2', 5'-dideoxy-5-iodouridine (AIU), 1-beta-D-arabinofuranosyl-E-5-(2-bromovinyl)uracil (BV-ara-U), 1-beta-D-arabinofuranosyl-E-5(2-chlorovinyl)uracil (CV-ara-U), halogenated deoxytidines BrCdR and ICdR, and bromovinyldeoxyuridine (BVDU).

133. The device according to Claim 99 wherein said at least one medicament comprises an antiviral and an anesthetic.

134. The device according to Claim 99 wherein said at least one medicament is at least intended to treat an infection by a human papilloma virus.

135. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical selected from the group consisting of Imiquimod, sodium salicylate, tretinoin, benzoyl peroxide, bleomycin, interferons, Podocon-25, Wart Off and Compound W.

136. The device according to Claim 99 wherein said at least one medicament comprises an antibiotic.

137. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical selected from the group consisting of finasteride, minoxidil, antidihydrotestosterones and antidihydroestrogens.

138. The device according to Claim 99 wherein said at least one medicament comprises at least a steroidal or non-steroidal anti-inflammatory drug (NSAID).

139. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of benzamycin, benzoyl peroxide, cleocin, T-Stat, Clearasil, Benzac, Accutane, tazarotene, adapalene, azelaic acid and erythromycin.

140. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of anesthetics, analgesics, and other desensitizing agents.

141. The device according to Claim 99 wherein said at least one medicament comprises at least one anesthetic selected from the group consisting of lidocaine, xylocaine, prilocaine, prilocaine, fetanyl, remifentanyl, sufentanyl, alfentanyl, novocaine, procaine, morphine HCl and EMLA.

142. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of vasodilators, antihistamines, antimetabolites, immunosuppressives, and antineoplastic agents.

143. The device according to Claim 99 wherein said at least one medicament comprises at least one chemical or biologic selected from the group consisting of antiandrogens, beta blockers, beta-adrenergic antagonists, catecholamines, modulators of collagen deposition, and sympathomimetics.

144. The device according to Claim 99 wherein said first electrode includes a multi-channel electrode, each electrode channel being electrically driven in a current isolated fashion through a corresponding plurality of individual current loops with each channel receiving substantially the same current level.

145. The device according to Claim 99 including a current driver, said first electrode including a plurality of current distributive channels and a plurality of current limiters coupled between said driver and said channels to provide substantially the same current level in each said channel.

146. The device according to Claim 99 wherein the device is disposable after one-time usage.

147. The device according to Claim 99 including a vibratory element carried by said device and electrically coupled to said power source for inducing ultrasonic vibration into the treatment site.